REMARKS

Claims 1-14 are pending in the application.

Claim Rejections - 35 U.S.C. § 102

(a) Claims 2-4 and 7 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Mae et al. (US 2004/0144136). This rejection is respectfully traversed.

(Claims 2, 3, and 7)

Claims 2 and 3 have been amended to claim:

> a casing having a water inlet and a water outlet allowing a water current to flow through the casing, constantly in a horizontal direction, from the inlet to the outlet . . . . (*emphasis added*)

Further, claim 7 has been amended to claim:

> a casing having a water inflow port and a water outflow port, such that a water current flows through the casing constantly in a horizontal direction from the inlet port to the outlet port . . . . (*emphasis added*)

These features are disclosed at least in Fig. 5 of the present application.

In the Office Action, the Examiner states:

> Even though Mae shows wherein the opening for water flow are located one above the other, in such a way that the fluid flows in a vertical orientation through the cell, Mae also discloses that the way of water flow in the pair of water communication paths (34, 35) is not particularly limited, but it is also conceivable that the water flows in a direction opposite to that described above.

Applicants respectfully submit that even assuming that the Examiner's interpretation of the Mae reference is reasonable, which Applicants do not admit, Mae discloses, at best, passages

close to the inlet and outlet (34, 35) that extend in a horizontal direction and a passage that connects the foregoing passages and extending in a vertical direction. Therefore, Mae fails to disclose or suggest "a casing having a water inlet and a water outlet allowing a water current to flow through the casing, constantly in a horizontal direction, from the inlet to the outlet," as recited in claims 2 and 3.

Claim 7 is allowable at least for the similar reasons as stated in the foregoing with regard to claims 2 and 3.

(Claim 4)

Claim 4 claims:

> a casing having a casing body and a lid attached to the casing body, the lid having a support that extends into a chamber defined inside the casing;
>
> terminals laid from the electrodes being so formed as to penetrate a bottom wall of the casing body and protrude downward . . . . (*emphasis added*)

This feature is shown in Figs. 5 and 6 of the present application, in which a casing (100a + 100b) having a casing body 100a and a lid 110b attached to the casing body, the lid 100b having a support 176 that extends into a chamber defined inside the casing (100a + 100b), and terminals 115, 116 penetrating a bottom wall of the casing body 100a and protrude downward.

In the Office Action, the Examiner first alleges that the washer housing 1 corresponds to the "casing body," the outer tub 2 corresponds to the "chamber," the suspension rods 3 and 4 correspond to the "support," and the upper lid 19 corresponds to the "lid" of the present invention. Then, the Examiner alleges that terminals of Mae penetrate from "a bottom wall of a casing (32; figure 4)."

Applicants respectfully disagree with the Examiner's interpretation of claim 4 because the claim, as amended in the Reply filed on May 21, 2009 claims "terminals laid from the electrodes being so formed as to penetrate a bottom wall of *the* casing" and not "a casing" as stated by the Examiner. In other words, "the casing" recited in claim 4 indicates the casing having the casing body and the lid. In this Reply, claim 4 has been amended to clearly define that "the terminals laid from the electrodes being so formed as to penetrate a bottom wall of the casing body."

The Examiner appears to have misinterpreted claim 4 by determining that, in one instance, the housing 1 and the upper lid 19 of Mae correspond to the "casing," and, in other instance, determining that the electrolyzing chamber 32 corresponds to another "casing."

Applicants submit that if the housing 1 and the upper lid 19 of Mae correspond to the "casing" of the present invention, the terminals 84 of Mae do not penetrate "a bottom wall" of the housing 1, and if the electrolyzing chamber 32 corresponds to the "casing" of the present invention, the chamber 32 of Mae does not have "a casing body and a lid attached to the casing body, the lid having a support that extends into a chamber defined inside the casing," as required in claim 4.

(Dependent Claims)

Applicants believe that claims 8, 9, 10, 11, 12, 13, and 14, variously dependent on any one of independent claims 2, 3, and 7, are allowable at least for their dependency on any one of claims 2, 3, and 7.

The Examiner is respectfully requested to reconsider and withdraw this rejection.

(b) Claims 5 and 6 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Scheper et al. (USP 7,413,637). This rejection is respectfully traversed.

(Claim 5)

Claim 5 has been amended to claim:

> a water inflow port and a water outflow port extending from the casing body, a cross-sectional flow area of the water inflow port and a cross-sectional flow area of the water outflow port being smaller than a cross-sectional flow area of the casing body . . . . (*emphasis added*)

This feature is shown in Fig. 7 of the present application.

In the Office Action, the Examiner alleges that the inlet port 17a of the Scheper reference corresponds to the "water inflow port," the outlet port 18 corresponds to the "water outflow port," and, the body 12 corresponds to the "casing" of the present invention.

Applicants submit, however, that as shown in Fig. 1 of the Scheper reference, a tube or a duct 51 (corresponds to the "casing body" of the present invention) has a cross-sectional flow area smaller than a cross-sectional flow area of the inlet port 17a (corresponds to the "water inflow port"), and same as a cross-sectional flow area of the outlet port 18 (corresponds to the "water outflow port"). Therefore, in Scheper, the cross-sectional flow area of the inlet port 17a and the cross-sectional flow area of the outlet port 18 are not "smaller than a cross-sectional flow area of" the tube or the duct 51, as required in claim 5.

(Claim 6)

Claim 6 has been amended to claim:

> wherein a cross-sectional flow area of the casing body gradually decreases from an upstream side to a downstream side. (*emphasis added*)

This feature is disclosed in Fig. 7 of the present application.

As stated in the foregoing with regard to claim 5, the device 10a of the Scheper reference has an inlet port 17a (corresponds to the "water inflow port"), the tube or duct 51 (corresponds to the "casing body"), and the outlet port 18 (corresponds to the "water outflow port"). As shown in Fig. 1, an cross-sectional flow area of the tube or duct 51 is constant and does not "gradually decrease" from an upstream side to a downstream side, as required in claim 6.

The Examiner is respectfully requested to reconsider and withdraw this rejection.

Claim Rejections - 35 U.S.C. § 103

(a) Claims 1, 8, 9, 11, and 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishiyama (JP 2002-263649) in view of Gale et al. (USP 5,198,078). This rejection is respectfully traversed.

Claim 1 claims:

> wherein an interval between the electrodes becomes narrower from an upstream side to a downstream side with respect to a water current flowing through an inside of a casing of the ion elution unit.

This feature is disclosed in Fig. 7 of the present application.

In the Office Action, the Examiner acknowledges that the Nishiyama reference does not disclose or suggest the foregoing claimed feature of the present invention. Applicants note that Nishiyama merely discloses a plurality of electrodes that is spaced apart by a constant distance (see silver electrodes 4a, 4b in Fig. 6).

Therefore, the Examiner relies on the Gale reference and alleges that it discloses anode-cathode distance at one side of the anode increases periodically to avoid constriction of electrolyte circulation.

Applicants respectfully submit that Gale states, in col. 1, lines 46-54:

> For most efficient cell operation, the anode-cathode distances must be reduced to a practical minimum while providing sufficient space for upward circulation of the bath impelled by the rising chlorine gas. The chlorine forms into a bubble layer which thickens upwardly along the anode, so that the anode-cathode distance is minimum at the bottom of the anode and increases upwardly to avoid constriction of electrolyte circulation. (*emphasis added*)

Gale also states, in col. 4, line 67 - col. 5, line 9:

> The molten magnesium 37 flows upwardly along each trough 35 to the uppermost, spout, ends 40, to thereupon pour upward and rise to the surface of bath 24.
>
> A bottom portion 26b and 27b of side plates 26 and 27, respectively, and each entire end plate 30 and 31, slope upwardly and outwardly away from associated vertical surfaces 28, 29, 32 and 33 of each anode 22. This provides an upwardly thickening flow channel for the non-turbulent circulation of bath 24 as it is drawn upward by the evolving chlorine 41. (*emphasis added*)

From the foregoing statements, liquid in Gale flows from the bottom end of the anode-cathode structure, at which a distance between the anode-cathode is smaller, toward the upper end of the structure, at which the distance is larger. In other words, the liquid flows from the narrower side to the wider side.

In contrast, in the claimed invention of the present application, "an interval between the electrodes becomes narrower from an upstream side to a downstream side with respect to a water

current flowing through an inside of a casing of the ion elution unit." In other words, as shown in Fig. 7, a distance between the electrodes becomes narrower as the water flows toward the water outflow port. Such a feature is not disclosed or suggested by the Gale reference.

In view of this, even assuming that Nishiyama and Gale can be combined, which Applicants do not admit, one skilled in the art would, at best, modify Nishiyama such that the interval between the electrodes becomes *wider* from an upstream side to a downstream side with respect to a water current flowing through an inside of a casing of the ion elution unit, and would not conceive the claimed feature of the present invention.

Claims 8, 9, 11, and 13, variously dependent on claim 1, are allowable at least for their dependency on claim 1.

The Examiner is respectfully requested to reconsider and withdraw this rejection.

(b) Claims 10, 12, and 14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Nishiyama in view of Miyazaki (JP 2001-276828). This rejection is respectfully traversed.

Claims 10, 12, and 14, variously dependent on claim 1, are allowable at least for their dependency on claim 1.

The Examiner is respectfully requested to reconsider and withdraw this rejection.

Conclusion

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and objections, and allowance of the pending claims are earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Maki Hatsumi Reg. No. 40,417 at

the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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